WHAT IS CLAIMED:

1. A fixed wireless metropolitan area network (MAN) operating in a frequency range of less than 10 GHz comprising:

a plurality of base stations, each base station providing orthogonal frequency division multiplexed (OFDM) wireless data communications on a set of channels defined in the frequency range for a coverage area unique to that base station and having a radius of more than 1 mile and less than 10 miles; and

a plurality of consumer premise equipment (CPE) assigned to each base station and located at a premise within the corresponding coverage area of that base station, each CPE having an antenna deployed internally within the premise where the CPE is located.

2. The fixed wireless MAN of claim 1 wherein the base stations and the CPEs utilize a signal modulation scheme that requires less than 10 dB of signal-to-noise (SNR) protection to achieve a 10^{-6} bit error rejection (BER) rate.

3. The fixed wireless MAN of claim 2 wherein the signal modulation scheme is a quadrature phase shift key (QPSK) modulation.

4. The fixed wireless MAN of claim 1 wherein the set of channels for a first base station are reused by a second base station having a coverage area adjacent to a coverage area of the first base station.

5. The fixed wireless MAN of claim 1 wherein the base stations and the CPEs utilize an ALOHA medium access scheme to mediate among multiple requests for data communications on the set of channels.

6. The fixed wireless MAN of claim 1 wherein each base station includes less than 10 sector-oriented antennas, each sector-oriented antenna providing wireless data communications to a predetermined sector of the coverage area of that base station, and wherein each sector-oriented antenna utilizes a different one of the set of channels.

7. The fixed wireless MAN of claim 1 wherein an efficiency ratio of the wireless data communications is at least 0.75.

8. The fixed wireless MAN of claim 1 wherein a ratio of the radius of the coverage area times a data rate for the wireless data communications divided by an attenuation loss of the wireless data communications is at least 5.

9. A fixed wireless access system, comprising:

a base station unit, wherein said base station unit includes a network interface connectable to a network, a first radio frequency interface enabling radio frequency transmission and reception, and a first switch, wherein said first switch capable of switching an information packet from said network to said base station unit and from said base station unit to said first radio frequency interface for transmission of said information packet by said base station unit via radio frequency and capable of switching

an information packet received at said first radio frequency interface to said base station unit and from said base station unit to said network; and

a customer premise equipment (CPE) unit, wherein said CPE unit includes a host interface connectable to a host, a second radio frequency interface enabling non-line-of-sight radio frequency transmission to said base station unit and non-line-of-sight radio frequency reception from said base station unit, and a second switch, wherein said second switch capable of switching an information packet from said host to said CPE unit and from said CPE unit to said radio frequency interface for transmission of said information packet by said CPE unit via radio frequency and capable of switching an information packet received at said radio frequency interface to said CPE unit and from said CPE unit to said host, wherein said first and second radio frequency interfaces utilize orthogonal frequency division multiplexing (OFDM) to transmit and receive said information packet.

10. The system of claim 9, wherein said host is selected from a group consisting of: a single host computer and a network of a plurality of host computers.

11. The system of claim 9, wherein said radio frequency interface operates in the 2.5 - 2.686 GHz range.

12. The system of claim 9, wherein said network interface and said host interface comprise an Ethernet interface.

13. The system of claim 9, further comprising a plurality of base station units, wherein said base station units are arranged according to a cellular structure and wherein each of said base station units emit a signal and wherein said CPE unit is registrable with at least one of said plurality of base station units via radio frequency communication and wherein said CPE unit determines which one of said plurality of base station units it will register with based on the signal quality of said signal from said plurality of base station units.

14. The system of claim 13, wherein upon said CPE unit registering with one of said plurality of base station units and upon said base station unit with which said CPE unit has registered losing signal quality, said CPE unit searches for a new one of said plurality of base station units based on signal quality and registers therewith.

15. The system of claim 14, wherein upon said CPE unit registering with said new one of said plurality of base stations said CPE unit passes the addresses of a host connected to said CPE unit to said one base station unit.

16. The system of claim 14, wherein upon registration of said CPE unit with a new one of said plurality of base station units, said new one of said plurality of base station units causes updating of said base station unit to which said CPE unit was previously registered whereby the previous base station unit becomes aware of said new registration of said CPE unit.

17. A wireless access system, comprising:

a plurality of base station units, wherein said base station units are arranged according to a cellular structure and wherein each of said plurality of base station units is connectable to a network; and

a customer premise equipment (CPE) unit, wherein said CPE unit communicates with said at least one of said plurality of base station units via radio frequency and is connectable to a host, wherein upon connection of said CPE unit to said host said CPE unit learns a high-level internet protocol address and a low-level physical address of said host by observing communication traffic of said host.

18. The system of claim 17, wherein said high-level internet protocol address comprises a level 3 address and wherein said low-level physical address comprises an Ethernet physical layer address.

19. The system of claim 17, wherein said communication traffic comprises an address request from said host to a connected network server and a response from said connected network server.

20. The system of claim 19, wherein said request and said response are implemented through dynamic host control protocol (DHCP).

21. The system of claim 17, wherein said CPE unit creates and uses a table of said high-level internet protocol addresses and said low-level physical addresses.

22. The system of claim 17, wherein upon connection of said CPE unit to a host said base station unit learns a high-level internet protocol address and a low-level physical address of said CPE unit and said host by observing communication traffic.

23. The system of claim 18, wherein said base station unit creates and uses a table of said high-level internet protocol address and said low-level physical addresses for said CPE unit and said host.

24. The system of claim 21, wherein said CPE unit transmits a message to said base station unit only if said message is directed to a host that is not listed within said table of said CPE unit.

25. The system of claim 23, wherein said base station unit only transmits a message to said CPE unit if said CPE unit is within said table of said base station unit.

26. The system of claim 23, wherein said base station unit is able to perform address resolution protocol (ARP) proxy on behalf of said host associated with said CPE unit.

27. The system of claim 26, wherein said ARP proxy of said base station unit operates to reduce radio frequency traffic.

28. The system of claim 17, wherein said radio frequency communication is in the 2.5 - 2.686 GHz range.

29. A wireless communication system, comprising:

a receiver and a transmitter, wherein said transmitter transmits to said receiver via radio frequency, and wherein said transmitter transmits an orthogonal frequency division multiplexed (OFDM) signal having a plurality of OFDM symbols, wherein said receiver detects said OFDM signal in an OFDM symbol-by-OFDM symbol manner, and wherein said plurality of OFDM symbols are without a training symbol.

30. The system of claim 29, wherein said OFDM signal has been coded by a Reed/Solomon encoder and a 1/2-rate convolutional encoder.

31. The system of claim 30, wherein the Reed/Solomon coding is decoded by said receiver and used by said receiver to correct for burst errors.

32. The system of claim 29, wherein said plurality of OFDM symbols comprise data and detection aiding information that is used by said receiver to demodulate said OFDM signal.

33. The system of claim 29, wherein said OFDM signal includes a cyclical prefix and wherein said cyclical prefix is utilized by said receiver to determine a coarse timing of said OFDM signal.

34. The system of claim 33, wherein said cyclical prefix is utilized by said receiver to determine a fine frequency of said OFDM signal.

35. The system of claim 29, wherein said plurality of OFDM symbols include pilot subsymbols, and wherein said pilot subsymbols are utilized by said receiver to determine a fine timing of said OFDM signal.

36. The system of claim 35, wherein said pilot subsymbols are utilized by said receiver to determine a coarse frequency of said OFDM signal.

37. The system of claim 29, wherein said OFDM signal is the results of said transmitter performing orthogonal frequency division modulation on a plurality of quadrature phase-shift keying (QPSK) subsymbols.

38. The system of claim 37, wherein said QPSK subsymbols are the results of said transmitter performing QPSK modulation on a coded bit stream.

39. The system of claim 38, wherein said QPSK modulation a cellular deployment of said receiver and transmitter wherein a 1:1 frequency reuse pattern is utilized.

40. The system of claim 38, wherein said coded bit stream includes a plurality of nulled center bits.

41. The system of claim 29, wherein said transmitter is selected from a group consisting of: a base station unit and a computer premise equipment (CPE) unit; and wherein said receiver is selected from a group consisting of: a base station unit and a CPE unit.

42. A wireless communication system, comprising:

a first transceiver and a second transceiver, wherein said first and second transceivers communicate over a radio frequency air link permitting both uplink transmissions and downlink transmissions, that utilize orthogonal frequency division multiplexing (OFDM) modulation, between said first and second transceivers, and wherein said downlink transmission is framed and said uplink transmission is unframed.

43. The system of claim 42, wherein said air link is established through a media access control (MAC) protocol.

44. The system of claim 43, wherein said MAC protocol provides a slotted-aloha media access with implicit reservation slots for a message with said transmission exceeding one slot of payload information.

45. The system of claim 42, wherein the frame of said downlink transmission includes a field selected from a group consisting of: a destination address field, a frame header field, and a uplink channel status field.

46. The system of claim 42, wherein said uplink transmission is presented within a fixed number of uplink slots.

47. The system of claim 45, wherein said uplink channel status field includes quality of service (QoS).

48. The system of claim 42, wherein said uplink transmissions and said downlink transmissions are time division duplexed.

49. The system of claim 48, wherein said uplink transmissions are transmitted in a plurality of uplink slots and said downlink transmissions are transmitted in a plurality of downlink slots, and wherein there is a variable ratio of said downlink slots to said uplink slots.

50. A method of establishing communication between a computer premise equipment (CPE) unit and a plurality of base station units, comprising the steps of:

user-installing said CPE unit to a host located within a premise, wherein said CPE unit is completely contained within said premise;

automatically registering with one of said plurality of base station units by radio frequency communication upon said CPE unit being user-installed.

51. The method of claim 50, wherein said step of registering is based upon a quality of signal emitted by said base station unit.

52. The method of claim 50, further comprising said one base station unit determining whether the registration of said CPE unit is allows with said one base station unit.

53. The method of claim 52, further comprising said one base station unit denying or acknowledging said CPE unit.

54. The method of claim 50, wherein said CPE unit is connected to a plurality of hosts and wherein upon said CPE unit registering with one of said plurality of base station units, said CPE unit passes the addresses of those hosts connected to said CPE unit to said one base station.

55. The method of claim 54, wherein said host is selected from a group consisting of: a single-host computer and a network of a plurality of host computers.

56. The method of claim 55, wherein said CPE unit is connected to said plurality of hosts via an Ethernet connection.

57. The method of claim 50, wherein said radio frequency communication is under 10 GHz.

58. A wireless cellular system, comprising:

a computer premise equipment (CPE) unit and a plurality of base station units, wherein said CPE unit is in communication with at least one of said plurality of base station units via a modulated radio frequency signal, wherein said base station units are arranged in a cellular configuration, and wherein a ratio of a maximum radius of a cell of said cellular configuration to an order of signal modulation is at least two.

59. A method for establishing a fixed wireless system, comprising:

purchasing a computer premise equipment (CPE) unit from a retailer;

obtaining a contract for a service provider upon purchasing said CPE unit;

contacting said service provider to provide information about the purchased CPE unit;

user-installing said CPE unit; and

automatically registering said CPE unit with one of a plurality of base station units previously established in said fixed wireless system.

60. A fixed wireless system, comprising

a plurality of computer premise equipment (CPE) units; and

a plurality of base station units, wherein each of said plurality of CPE units communicate with at least one of said plurality of base station units via radio frequency, and wherein said plurality of CPE units and said plurality of base station units are arranged in a sectorized configuration, wherein each sector has up to 250 CPE units and wherein each sector has a radius of less than 10 miles.

61. The system of claim 60, wherein said sectorized configuration is maintained in a cellular configuration.

62. The system of claim 61, wherein said cellular configuration incorporates six sectors per cell.

63. The system of claim 63, wherein said cellular configuration has a 1:1 reuse pattern.